SD

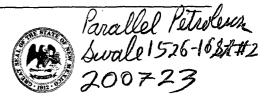
APP NO. 0 TD S0722952201

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



		ADMINISTRATIVE APPLICATION CHECKLIST
٦	THIS CHECKLIST IS M	ANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE
A ppii	[DHC-Dowi	
[1]	TYPE OF AP [A]	PLICATION - Check Those Which Apply for [A] Location - Spacing Unit - Simultaneous Dedication NSL NSP SD
	Check [B]	One Only for [B] or [C] Commingling - Storage - Measurement DHC CTB PLC PC OLS OLM
	[C]	Injection - Disposal - Pressure Increase - Enhanced Oil Recovery WFX PMX SWD IPI EOR PPR
	[D]	Other: Specify
[2]	NOTIFICAT: [A]	ION REQUIRED TO: - Check Those Which Apply, or □ Does Not Apply Working, Royalty or Overriding Royalty Interest Owners
	[B]	Offset Operators, Leaseholders or Surface Owner
	[C]	Application is One Which Requires Published Legal Notice
	[D]	Notification and/or Concurrent Approval by BLM or SLO U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
	[E]	For all of the above, Proof of Notification or Publication is Attached, and/or,
	[F]	☐ Waivers are Attached
[3]		CURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE TION INDICATED ABOVE.
	val is accurate a	TION: I hereby certify that the information submitted with this application for administrative ad complete to the best of my knowledge. I also understand that no action will be taken on this quired information and notifications are submitted to the Division.
	br Type Name	Statement must be completed by an individual with managerial and/or supervisory capacity. Kellahin & Kellahin Signature Attorneys At Tine Date

706 Gonzales Rd. THENDING COMEDIA. MET Santa Fe, NM 8750 (Address

Northwest Shelf Stratigraphic Chart

Ag	je	Unit Name	HC's	Approx. Depth
	Ochoan	Rustler		
	Ochoan	Salado		
		Tansill		
		ੂੱ Yates	o ☆	
	Guadalupian	Yates Seven Rivers	• ‡	
	Guadalupian	ப் Queen	• ‡	
		Grayburg	• ‡ • ‡ • ‡	
Permian		San Andres	•	
289-248 MYA		Glorieta	0	
		Yeso	• ‡	•
	Leonardian	Abo	• ‡	Top Reservoir ~5000-5500'
	Wolfcampian	Wolfcamp H	• 芬	~5000-5500
		Cisco		
Pennsylvanian		Canyon		
289-320 MYA		Strawn	• 🌣	
200.020 1117		Atoka	· · · · · · · · · · · · · · · · · · ·	
		Morrow	• ‡	
Mississippian		Miss. Lime	• ‡	
320-363 MYA		Woodford		
Devonian 409-363 MYA		Devonian	☆	
Silurian		U. Silurian		
439-409 MYA		Fusselman	•	
		Montoya	0	
		_ McKee	☆	
Ordovician		Waddell Waddell		
510-439 MYA		Waddell Connell		
		Joins		
		Ellenburger	- - - - - - - -	
Cambrian 510-570 MYA				-
Pre-Cambrian >570 MYA		и		

LEGEND



Current Active Plays

Oil Producing Zones

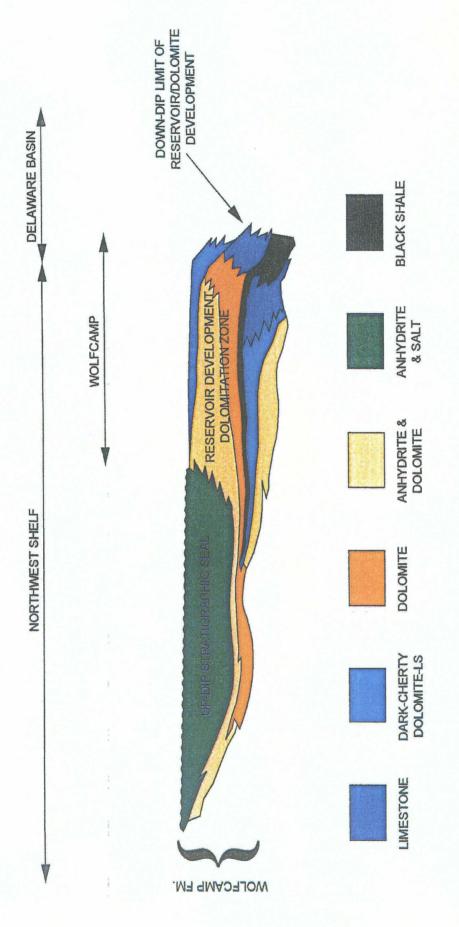
☆Gas Producing Zones



CROSS SECTION & TRAP DIAGRAM

SZ

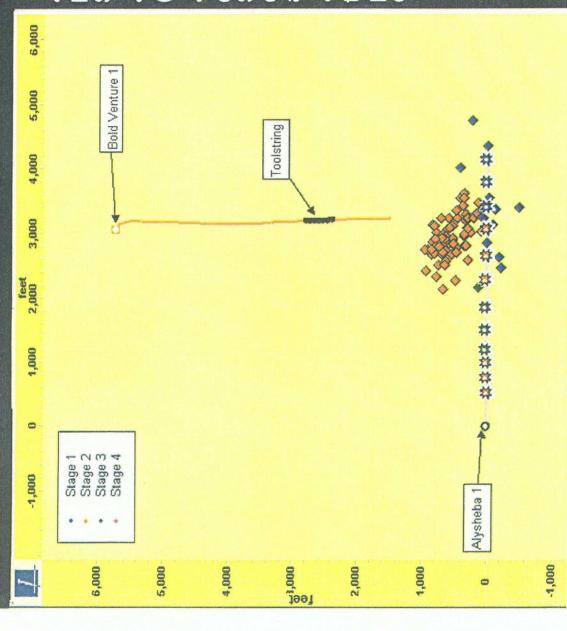
SE



Northwest-southeast cross section across the Northwest Shelf/Delaware Basin transition. Rock types are diffrentiated illustrating the trap developed within the Wolfcamp reservoir. dolomitized reservoir developed down-dip. Further down structure the reservoir is limited The pervasive evaporite deposites in the northwest act as a stratigraphic seal for the by the lack of dolomite within tighter limestone and shale deposits.

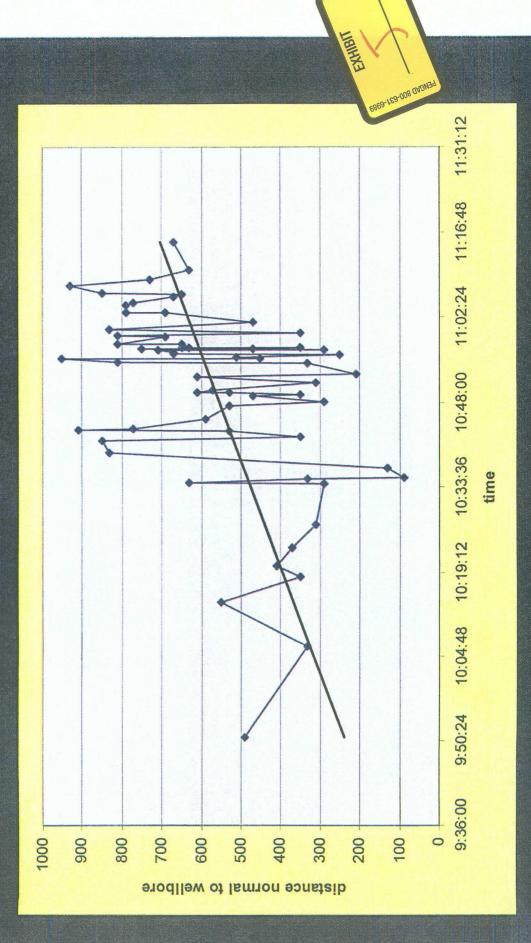


Alysheba No. 1 - Map View



- Fracture Azimuths: Difficult to determine, possibly N-
- Fracture Half-Lengths: ~900' (measured North from wellbore)
- Most of the microseismic events were recorded during Stage 2. Only one event was detected during both Stages 3 and 4.
- Unclear why Stage 2 produced the majority of the events; perhaps interaction with faulting or fracture swarm near wellbore?





/ Pinnacle

Conclusions

- Azimuth uncertain, but has a strong N-S component
- ·Possibility of a N35°E secondary component
- 250 ft of height
- •900 ft of half-length, longer than Seabiscuit, but still shorter than competitors
- Low degree of complexity
- initiation (all stages lack of tortuosity, presense of ·Higher pressures may not be related to oblique perf friction)



Wildcat Heasurement Service P.O. Box 1836 Artesia. New Mexico 88211-1836 TollFree #888-421-9453

Office #505-746-3481 "Quality and Service is our First Concern" PDS 06/25/00

Run Ro. 261213-02 Date Run 12/13/2006 Date Sampled 12/09/2006

Analysis for: PABALLEL PETROLEUM CORPORATION

Well Bane: FORESO 1525-16 STATE "B" #1

GPANGL.162

Pield:

Sta. Rumber:

Producer: PARALLEL PETROLBUM CORP. County: CHAVES State: BH

Purpose: SPOT Sampled By: A.J.G. Sampling Temp: 22.0 DEG F

Atmos Temo: DEG P

Volume/day: 1925 HCF/DAY Pressure on Cylinder: 60.0 PSIG Formation:

Line Pressure: 73.2 PSIA

GAS COMPONENT ANALYSIS Pressure Base: 14,7300

> Mol % GPM Real BYU Dry: 1078.92 Real BPU Wet: 1060.14

Real Calc. Specific Gravity: 0.6732 Field Specific Gravity: 0.0000

Carbon Dioxide CO2 4.3235 Standard Pressure: 14.6960

Mitrogen 12 0.6738 BTO Dry: 1073.62 BTO Wet: 1054.94

Nethane 85.9676 CI Ethane C2 5.6524 1.5108 I Pactor: 0.9974 N Value: 1.2948 Avg Kol Weight: 19.4551 Propane C3 1.9299 0.5314 Iso-Butane 0.2812 0.0920 104

Nor-Butane RC4 0.4872 0.1536 Iso-Pentane 105 0.1606 0.0588 Avg CuPt/Gal: 57.1122 Nor-Pentane NC5 0.1404 0.0508 26 Lb Product: 0.4332 Hethane+ GPH: 17.1358

Hexanes Plus C6+ 0.3834 0.1673 Sthane+ GPM: 2.5647 Propane+ GPM: 1.0538

Butane+ GPH: 0.5225 Pentane+ GPM: 0.2769

TOTAL 100.0000 2.5647

REMARKS:

Approved by: DON ROBHAR

Wed Dec 13 10:13:35 2006

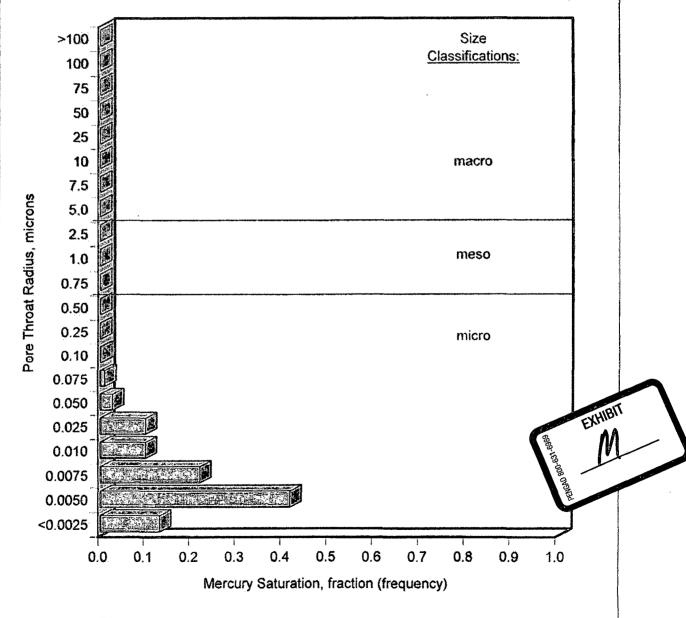


Company:	Bold Energy
Well:	Delilah State No. 1
Field:	Runyan Ranch
Formation:	Wolfcamp
Location:	Eddy County, New Mexic
File:	HOU-060947

Sample:	6Bm	un-	Host Plug		
Depth, feet:	4385,60	stressed	na	na	
Klinkenberg Permeability	/, md:	0.005	•	-	
Permeability to Air, md:		0.019	•	-	
Swanson Permeability, n	nd:	0.00001	-	-	
Porosity, fraction:		0.013	-	-	
marinum Ch/Da fration		0.00000			

maximum Sb/Pc, fraction: 0.00003
R35, microns: 0.00583
R50 (median pore throat radius): 0.00469

PORE THROAT SIZE HISTOGRAM



KELLAHIN & KELLAHIN Attorney at Law

W. THOMAS KELLAHIN 706 GONZALES ROAD SANTA FE, NEW MEXICO 87501

TELEPHONE 505-982-4285 FACSIMILE 505-982-2047 TKELLAHIN@COMCAST.NET

August 17, 2007

HAND DELIVERED

Mr. Mark Fesmire, P.E., Director Oil Conservation Division 1220 South Saint Francis Drive Santa Fe, New Mexico 87505

Re: Administrative Application of Parallel Petroleum Corporation for authorization to simultaneously dedicate a standard gas spacing and proration unit in the Wolfcamp formation to two horizontal wellbores, including an exception to the well density requirement of Division Rule 104.D, Chaves County, New Mexico S/2 Section 16, T15S, R25E

Swale 1525-16 State Well No. 1 and 2

Dear Ms. Fesmire:

cc:

On behalf of Parallel Petroleum Corporation, please find enclosed our referenced administrative application.

Thomas Kellahin

Parallel Petroleum Corporation
Attn: Mike Gray

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -



1220 South St. Francis Drive, Santa Fe, NM 87505

		ADMINISTRATIVE APPLICATION CHECKLIST	
TH	IS CHECKLIST IS N	MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REC WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE	GULATIONS
Applic	ation Acronym		
	DHC-Dow	andard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication with the Comming of the Comming	e)
[1]	TYPE OF AI	PPLICATION - Check Those Which Apply for [A] Location - Spacing Unit - Simultaneous Dedication NSL NSP SD	
	Checl [B]	ck One Only for [B] or [C] Commingling - Storage - Measurement DHC CTB PLC PC OLS OLM	
	[C]	Injection - Disposal - Pressure Increase - Enhanced Oil Recovery WFX PMX SWD IPI EOR PPR	
	[D]	Other: Specify	
[2]	NOTIFICAT [A]	TION REQUIRED TO: - Check Those Which Apply, or □ Does Not Apply Working, Royalty or Overriding Royalty Interest Owners	
	[B]	Offset Operators, Leaseholders or Surface Owner	
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[3]		CCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS TI ATION INDICATED ABOVE.	łE TYPE
	al is accurate a	ATION: I hereby certify that the information submitted with this application for admit and complete to the best of my knowledge. I also understand that no action will be to equired information and notifications are submitted to the Division.	
	Lelle	E: Spatement must be completed by an individual with managerial and/or supervisory capacity. Kellahin & Kellahin	8/17/0
Print or	Type Name	Signature Attorneys At _{The} aw 706 Gonzales Rd. The Barrella Co.	Date
		100 Guildies Ru. The single	Me ATT. A

Santa Fe, NM 87507Address

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE ADMINISTRATIVE APPLICATION OF PARALLEL PETROLEUM CORPORATION FOR AUTHORIZATION TO SIMULTANEOUSLY DEDICATED A STANDARD SPACING AND PRORATION UNIT IN THE WOLFCAMP FORMATION TO TWO HORIZONTAL WELLS INCLUDING AN EXEMPTION TO THE WELL DENSITY REQUIREMENT OF RULE 104.D, CHAVES COUNTY, NEW MEXICO.

ADMINISTRATIVE APPLICATION

Parallel Petroleum Corporation ("Parallel") by its attorneys, Kellahin & Kellahin, seeks approval to simultaneously dedicate a standard gas spacing and proration unit in the Wolfcamp formation to two horizontal wellbores including an exemption to the well density requirements of Rule 104.D, Chaves County, New Mexico. Applicant seeks authorization to dedicate a standard 320-acre spacing and proration unit comprised of the S/2 of Section 16, Township 15 South, Range 25East, Chaves County, New Mexico in the Wolfcamp formation to the following two wells:

- (a) The Swale 1525-16 State Well No 2 (API #3000563924) to be drilled at an unorthodox surface location 760 feet FSL and 190 feet FWL (Unit M) and then to penetrate the Wolfcamp formation within the standard producing area window at a standard subsurface location approximately 660 feet FWL and 760 feet FSL (Unit M) and then drilled horizontally in an easterly direction staying within the producing area not less than 660 feet from each of the end and side boundaries of this spacing unit and ending at a standard bottom hole location 760 feet FSL and 660 feet FEL
- (b) The Swale 1525-16 State Well No. 1 (API #3000563886) that has been drilled at an unorthodox surface location 1880 feet FSL and 208 feet FWL (Unit L) and penetrated the Wolfcamp formation within the standard producing area window at a standard subsurface location approximately 660 feet FWL and 660 feet FSL (Unit L) and then was drilled horizontally in an easterly direction staying within the producing area not less than 660 feet from each of the end and side boundaries of this spacing unit and ending at a standard bottom hole location 1880 feet FSL and 660 feet FEL

In support of its application, Parallel states:

- (1) Parallel is the current operator of the Swale 1525-16 State Well No. 1 (API #3000563886) that has been drilled and completed as a horizontal well in the N/2S/2 of Section 16, T15S, R25E. See Exhibit "A" attached
- (2) Parallel has obtained approval of its APD to drill second horizontal well in the S/2S/2 of Section 16, T15S, R25E being the Swale 1525-16 Well No. 2 (API #3000563924). See Exhibit "B" attached
- (3) Division Rule 111 provides for the rules and regulations of the drilling of directional wells and by definition includes "horizontal" wells but apparently does not limited the number of horizontal wells that can be drilled within a Project Area. Instead Rule 111 refers to a project area "that is enclosed by the outer boundaries of a spacing unit or a combination of complete spacing units," and incorporates by reference Rule 104 to define a "spacing unit"
- (4) Division Rule 104.C (2) allows two wells in a 320-acre spacing unit with each well located in a different 160-tract of the 320-acre spacing unit. This rule appears not to specifically address horizontal wells.
- (5) Division Rule 104.D (3) States: "number of wells per spacing unit. Exceptions to the provisions of statewide rules or special pool orders concerning the number of wells allowed per spacing unit may be permitted by the Director only after notice and opportunity for hearing. Notice shall be given to those "affected parsons" defined by Rule 1207.A (2)."
- (6) The Division Legal Examiner, David K. Brooks, has advised the notice for this type of case, "affected parties" are: (a) all each operator of an adjoining and offsetting 320-acre drilled or undrilled spacing units (direct or diagonal offsets) (b) if undrilled, then to the working interest owners and unleased mineral owners, (c) if applicant is also the offsetting operator, then to its working interest owners, (d) if applicant is the offsetting operator and the only working interest owners, then to its lessors, (e) if the offsetting section has no spacing unit, then the applicant and presume the orientation closest to the subject spacing unit.

- (7) Parallel has provided written notice of hearing to all "affected parties, including those listed on the attached located map and index. Exhibit "C" and the notice letter attached as Exhibit "D"
- (8) Parallel's enclosed exhibits demonstrate that because of the low permeability of the Wolfcamp formation in this area:
 - a. the actual area being depleted by the first horizontal well is generally limited to the north half of this spacing unit, being the N/2S/4 of Section 16, and it not effectively recovery either the gas underlying the S/2 of Section 16 or adversely affecting the correlative rights of the offsetting interest owners.
 - b. A second horizontal well is needed by the south half of this spacing unit, being the S/2S/2 of Section 16, in order to provide a opportunity to recovery gas that might otherwise not be recovered under the S/2 of Section 16 and in doing so will not adversely affect the correlative rights of the offsetting interest owners.
- (9) Exhibit "E" is a written summary prepare by Parallel's petroleum geologist and petroleum engineer with supporting exhibits:
 - (a) paleogeography of the Permian basin---see Exhibit "F"
 - (b) NW shelf stratigraphic chart---see Exhibit G
 - (c) Cross Section & Trap Diagram---see Exhibit H
 - (d) Alysheba No. 1-Map View—see Exhibit I
 - (e) Alysheba No. Stage 2-Map View—Exhibit J
 - (f) Conclusions—Exhibit K
 - (g) Gas Analysis from Foreso 152506 State E-1 well, see Exhibit L
 - (h) Pore Throat Size Histogram—see Exhibit M
 - (i) Three well cross-section (Large display)—see Exhibit N
- (10) These exhibit are basically the same data presented to the Division's at a meeting on February 13, 2007 attended by members of the industry and the Division Chief Engineer, Richard Ezeanyim, and Division's attorney, David K. Brooks.
- (11) Approval of this application will not impair the correlative rights of any other interest owner in the area and will afford Parallel the opportunity to utilize two horizontal wells to produce the Wolfcamp formation gas reserves from this GPU.

(12) Approval of this application will be in the best interests of conversations, the prevention of waste and the protection of correlative rights.

WHEREFORE, Parallel Petroleum Corporation requests that this the Oil Conservation Division enter its order granting an exception to the well density requirements of Rule 104.B and authorize the simultaneous dedication of two horizontal wells within this spacing unit.

ÉSPECTFULLY SUBMITTED:

W. THOMAS KELLAHIN KELLAHIN & KELLAHIN

706 Gonzales Road

Santa Fe, New Mexico 87501

(505) 982-4285

MIRICI J 1625 N. Dench Dr., Hobber 38, 28240 DISTRICT II 1301 W. Grand Avenue, Artesia, 75, 88210

DISTRICT III
1000 Rio Brazos Rd., Astec, NN 67410

DISTRICT_IY
1220 S. St. Francis Dr., Santa Fe, NM 87506

State of New Mexicon

Rnergy, Minerals & Natural Resources Repartment

OIL CONSERVATION DIVISION

1220 South St. Frances Dr. Conservation

Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Strait to Appropriate District Office
State Lease ~ 4 Copies
Fee Lease ~ 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Wildows'	Pool Name Wolfcamp	
Property Code		erty Name 25-16 STATE	Well Number	
OGRID No.	•	ator Name LEUM CORPORATION	Sievation 3501	·

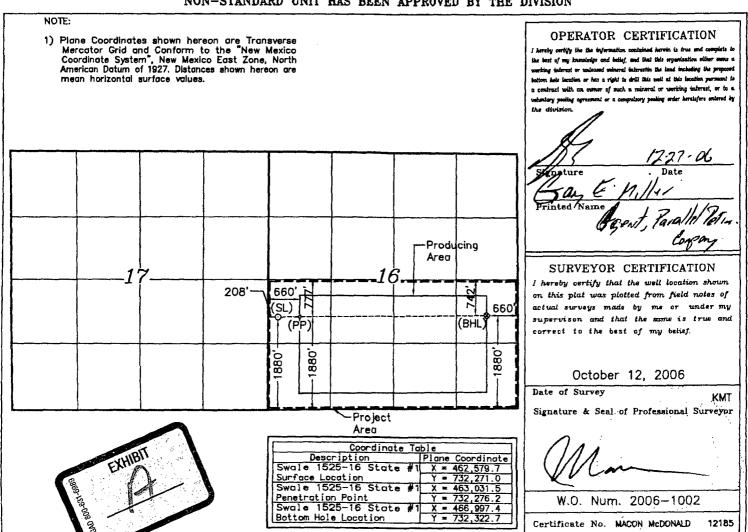
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	16	15 S	25 E		1880'	SOUTH	208'	WEST	CHAVES

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1 1	1 16 15 S		25 E		1880'	SOUTH	660	EAST	CHAVES
Dedicated Acres	cated Acres Joint or Infill Consolidation Code Order No.								
320									

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



DISTRICT I 1625 N. French Dr., Hobbs, NN 88240

DISTRICT II 1301 W. Grand Avanue, Artesia, NM 88210

DISTRICT III 1000 Rio Brasos Rd., Astec, NM 87410

DISTRICT IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

16

Joint or Infill

Dedicated Acres

15 S

25 E

Consolidation Code

State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Frances Dr. Santa Fe, NM 87505

Form C-102 Revised October 12, 2005 Submit to Appropriate District Office State Lease - 4 Copies Fee Lease - 3 Copies

EAST

CHAVES

660

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

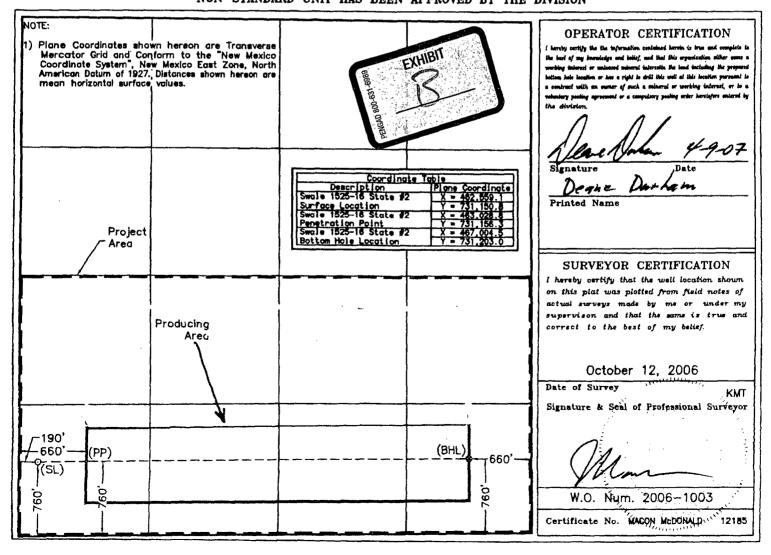
API	Number		9	Pool Gode 7489		Wildear	Pool Name	a mp		
Property	Code			Well Number						
			SWALE 1525-16 STATE						2	
PARALLEL PETROLEUM CORPORATION						Elevation 3498'				
					Surface Loc	ation				
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
М	16	15 S	25 E		760	SOUTH	190	WEST	CHAVES	
			Bottom	Hole Loc	cation If Diffe	erent From Sur	face			
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

760

Order No.

SOUTH



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Parallel Petroleum Corporation's Notice List For Swale 1525-16 State Com Wells No. 1 and 2

Tract 1: N/2 of Sec 15 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc.

Tract 2: S/2 of Sec 15 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 3: N/2 of Sec 16 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 4: N/2 of Sec 17 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (d) CMW Interests, Inc. (W/2E/2)
- (e) Egler Exploration, Inc.(W/2E/2)

Tract 5: S/2 of Sec 17 (Drilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc. (W/2E/2)
- (d) Egler Exploration, Inc. (W/2E/2)

Tract 6: N/2 of Sec 20 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 7: N/2 of Sec 21 (Undrilled)

- a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tracts 8: N/2 of Sec 22 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc. (E/2NE/4)
- (d) Elger Exploration, Inc. (E/2NE/4)
- (e) Unleased mineral interest owners:
 - a. A. Gayle Hudgens. a single womanP.O. Box 25561Dallas, TX 75225

- b. Sacramento Partners Limited Partnership 105 South Fourth Street Artesia. NM 88210
- c. Spiral, Inc. P.O. Box 1933 (address)
- e. Sharbro Oil Ltd. Co. P.O. Box 829 Artesia, NM 88211
- f. Southwest Resources, Inc. 1111 West Country Club Road Roswell, NM 88201
- g. Lobos Energy Partners, LLC 3817 NW Expressway, Suite 950 Oklahoma City, OK 73112
- h. Estate of W. E. Flint, dec.

 Dona Ana County, NM PC #5171

 Elaine B. Flint, widow and exec.

 2125 Thomas Dr.

 Las Cruces, NM 88001
- i. Margaret Louise Doyle & John Steven Doyle, 3747 - 66 Campana South Oceanside, CA 92054
- j. Martin Yates III c/o Myco Industries, Inc. P. o. Box 840 Artesia NM 88211

KELLAHIN & KELLAHIN Attorney at Law

W. Thomas Kellahin 706 Gonzales Road Santa Fe, New Mexico 87501

TELEPHONE 505-982-4285 FACSIMILE 505-982-2047 TKELLAHIN@COMCAST.NET

August 17, 2007 CERTIFIED MAIL-RETURN RECEIPT REQUESTED

NOTICE OF THE FOLLOWING NEW MEXICO OIL CONSERVATION DIVISION ADMINISTRATIVE CASE:

OFFSETTING INTEREST OWNERS:

Re:

Administrative Application of Parallel Petroleum Corporation for authorization to simultaneously dedicate a standard gas spacing and proration unit in the Wolfcamp formation to two horizontal wellbores, including an exemption to the well density requirements of Rule 104.D, Chaves County, New Mexico

Dear interest owner:

On behalf of Parallel Petroleum Corporation please find enclosed a copy of its referenced administrative application. This notice is based upon records that indicate that you have an interest in adjoining and offsetting tracts and are parties affected by this application

If you have no objection, then there is nothing for you to do. If you are willing to waiver objection, please sign this letter as indicated and return it to me. However, should you have any objection to the Division approving this application, then it will be necessary for you to file a written objection with the New Mexico Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505 within twenty (20) days of the date of this letter. Failure to file a timely objection will preclude you from objecting at a later date.

WAIVER OF OBJECTION:

By: _____ with authority for and on behalf of _____ Date: ____

Wolfcamp Reservoir Development Section 16, T15S, R25E Chaves Co., New Mexico Case # 13965

This Wolfcamp gas reservoir is interpreted as the sabkha shelf model along the Northwest carbonate platform. The Wolfcamp reservoir is contained within the restricted lagoon-platform facies belt where dolomitization and fracturing has occurred to enhance the porosity and in deep enough water so that evaporates are not prevalent to occlude porosity. Up-dip, north to northwest of the reservoir are terrestrial deposits which do include evaporates that cement the porosity and act as a seal for the Wolfcamp stratigraphic trap. Down-dip, south to southeast, of the dolomitized Wolfcamp reservoir facies belt are tight limestones that do not contain the reservoir development.

There are three alternating depositional cycles. The matrix porosity is comprised of a dolomitized fusulinid wackestone-packstone overlain by a burrowed lime mud overlain by a lagoonal shale which is the maximum flooding event. The reservoir also contains natural fractures. The principal maximum stress direction is predominantly north-south. The formation dips to the east-southeast at 1 degree. The average gross thickness of the Wolfcamp varies from 25'-50' with an average net thickness of a few feet to 25' and an average porosity less than 8%.

Planned spacing between horizontal laterals in the south-half of section 16 is 1160°.

The Swale 1525-16 State #1 has been drilled in the north-half of the south-half and actual footages for the penetration point and total depth within the Wolfcamp pay are:

Surface Location @ 1880' FSL and 208' FWL, Section 16, T15S, R25E

Penetration Point @ 5183' measured depth, 1850' FSL and 751' FWL

Bottom-Hole Location @ 8924' measured depth, 1906' FSL and 790' FEL

Perforations are from top perf at 5290' measured depth to bottom perf at 8822' measured depth.

The Swale 1525-16 State #2 will be in the south-half of the south-half, and planned surface, penetration point and total depth are:

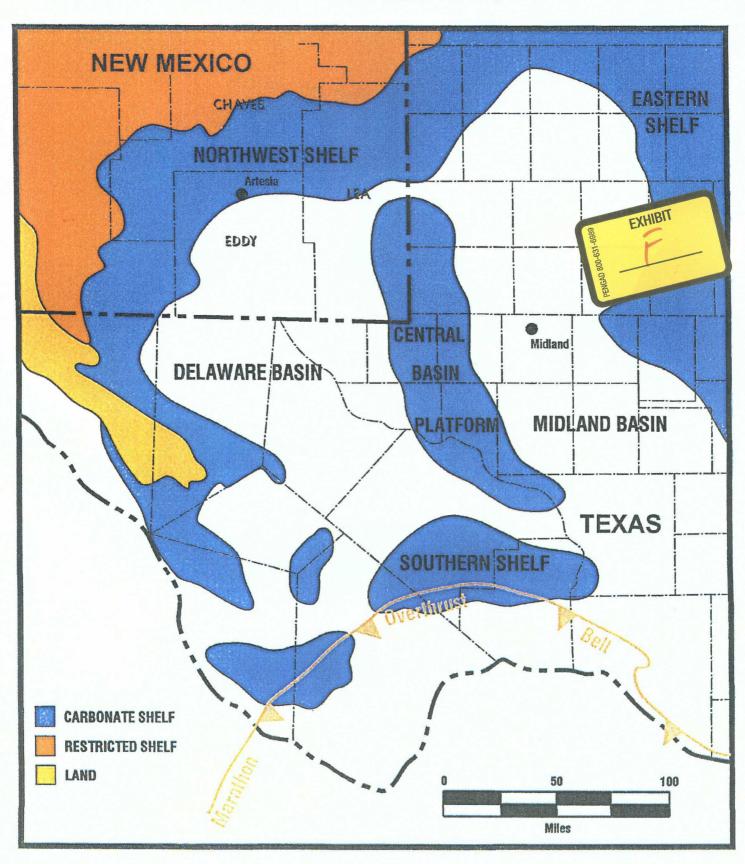
Surface Location @ 760' FSL and 190' FWL, Section 16, T15S, R25E

Penetration Point @ 760' FSL and 660' FWL, Bottom-Hole Location @ 760' FSL and 660' FEL

Recommended fracture half-lengths for this formation in the area are 1,100' in order to drain 160 acres. This would require 4 horizontal wells in parallel to drain a 640-acre section. This 1,100' fractured half-length yields an approximate proppant-fractured half-length of 500-600' and an effective producible half-length of 300-400'. Microseismic monitoring data from wells in the area fractured using Parallel Petroleum's preferred stimulation method show a fractured half-length of 900' and therefore the estimated producible half-length estimate is shorter than the recommended 300-400'. An optimistic estimate of 300' producible half-length of both the Swale #1 and the Swale #2 would create an unproductive interval along the length of and between the laterals of 560'.

In conclusion, given: low permeability of the dolomite (< .01 - .02 md), small net pay interval (< 20' in section 16) and low porosity of the interval (< 3% - 9% - $\sim 7\%$ in section 16), the Wolfcamp formation should be produced using 2 parallel horizontal wells per 320-acre unit to efficiently drain the unit.

WOLFCAMPIAN (PERMIAN) PALEOGEOGRAPHY OF THE PERMIAN BASIN



Northwest Shelf Stratigraphic Chart

Ag	je	Unit Name	HC's	Approx. Depth
		Rustler		
	Ochoan	Salado		
		Tansill		
			。	
	Guadalupian	Yates Seven Rivers Oueen	• 🌣	
	Guadalupian	ш Queen	● \\ \	
		Grayburg	• 	
Permian		San Andres	©	
289-248 MYA		Glorieta	9	
		Yeso	o ☆	·
	Leonardian	Abo	• ‡	Top Reservoir
	Wolfcampian	Wolfeamp :	◎ ☆	~5000-5500'
		Cisco		
 Pennsylvanian		Canyon		
289-320 MYA		Strawn	● ☆	
200 020 14117		Atoka	<u>☆</u> • ☆	
		Morrow	● ☆	
Mississippian		Miss. Lime	☆	
320-363 MYA		Woodford		
Devonian 409-363 MYA		Devonian	*	
Silurian		U. Silurian]
439-409 MYA		Fusselman	0	_
		Montoya	0	
		_ McKee	☆	
Ordovician	1	Waddell Connell		_
510-439 MYA		E Connell		4
		Joins	<u> </u>	4
Combine		Ellenburger		
Cambrian 510-570 MYA				
Pre-Cambrian >570 MYA				

LEGEND



Current Active Plays

Oil Producing Zones

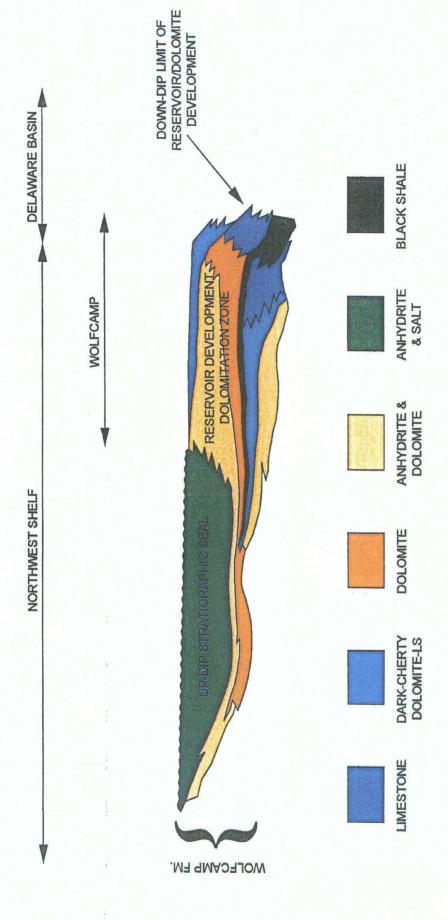
☆ Gas Producing Zones



CROSS SECTION & TRAP DIAGRAIM

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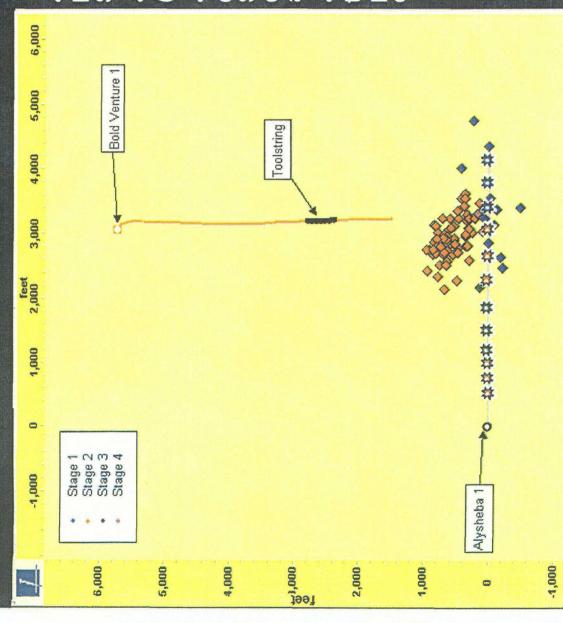
SE



Northwest-southeast cross section across the Northwest Shelf/Delaware Basin transition. Rock types are diffrentiated illustrating the trap developed within the Wolfcamp reservoir. dolomitized reservoir developed down-dip. Further down structure the reservoir is limited The pervasive evaporite deposites in the northwest act as a stratigraphic seal for the by the lack of dolomite within tighter limestone and shale deposits.

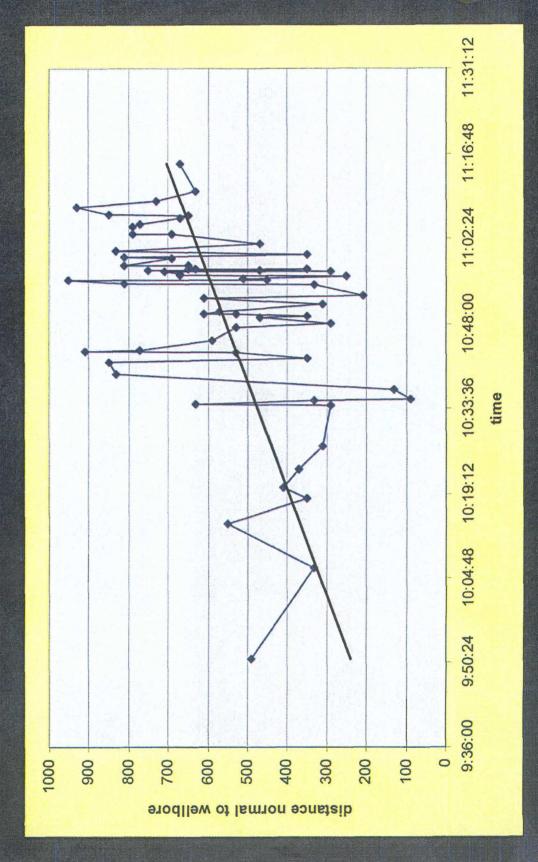


Alysheba No. 1 - Map View



- Fracture Azimuths:
 Difficult to determine, possibly N-S.
- Fracture Half-Lengths: ~900' (measured North from wellbore)
- Most of the microseismic events were recorded during Stage 2. Only one event was detected during both Stages 3 and 4.
- Unclear why Stage 2 produced the majority of the events; perhaps interaction with faulting or fracture swarm near wellbore?





1 Pinnacle

EXHIBIT

Conclusions

- ·Azimuth uncertain, but has a strong N-S component
- ·Possibility of a N35°E secondary component
- 250 ft of height
- •900 ft of half-length, longer than Seabiscuit, but still shorter than competitors
- Low degree of complexity
- initiation (all stages lack of tortuosity, presense of ·Higher pressures may not be related to oblique perf friction)



Wildcat Heasurement Service P.O. Box 1836 Artesia, New Hexico 88211-1836 TollFree #888-421-9453

Office #505-746-3481 "Quality and Service is our First Concern" PDS 06/25/00

Run Ro. 261213-02 Date Run 12/13/2006 Date Sampled 12/09/2006

Analysis for: PARALLEL PETROLEUM CORPORATION

Well Bane: FORESO 1525-16 STATE "R" #1

GPANGL.L62

Pield:

Producer: PARALLEL PETROLEUM CORP. County: CRAVES

Sta. Humber:

Sampled By: A.J.G.

State: RM

Purpose: SPOT Sampling Temp: 22.0 DEG F

Atmos Temp:

Volume/day: 1925 HCP/DAY

Pornation:

DEG P

Pressure on Cylinder: 60.0 PSIG

0.6738

Line Pressure: 73.2

PSIA

GAS COMPONENT ANALYSIS

Pressure Base: 14.7300

Mol 8 GPH

Real BYU Dry: 1078.92

Real BYD Wet: 1060.14

Real Calc. Specific Gravity: 0.6732

Field Specific Gravity: 0.0000

Carbon Dioxide CO2 4.3235

12

Standard Pressure: 14.6960

BTU Dry: 1073.62 BTO Wet: 1054.94

Hethane 85.9676 **C1** Ethane CZ 5.6524

1.5108 0.5314

2.5647

% Pactor: 0.9974

Propane C3 1.9299 Iso-Butane 104 0.2812 0.0920 Nor-Butane NC4 0.4872 0.1536 Iso-Pentane 105 0.1606 0.0588 Nor-Pentane BC5 0.0508

N Value: 1.2948 Avg Kol Weight: 19.4551 Avg CuPt/Gal: 57.1122

0.1404 Hexanes Plus C6+ 0.3834 0.1673 26 Lb Product: 0.4332 Methane+ GPM: 17.1358 Bthane+ GPH: 2.5647 Propane+ GPM: 1.0538

TOTAL

Nitrogen

100.0000

Butane+ GPM: 0.5225 Pentane+ GPM: 0.2769

REMARKS:

Approved by: DON RORMAR

Wed Dec 13 10:13:35 2006



Company: Bold Energy
Well: Delilah State No. 1
Field: Runyan Ranch
Formation: Wolfcamp

Location: Eddy County, New Mexico

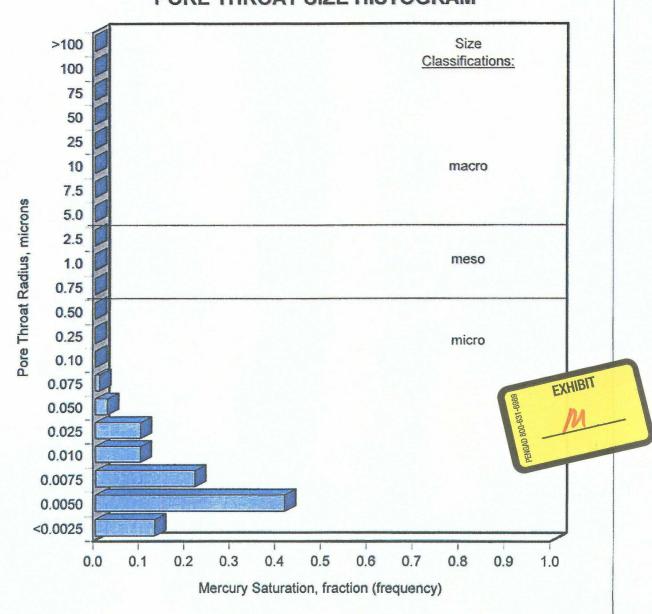
File:

HOU-060947

Sample:	6Bm	un-	Host	Plug
Depth, feet:	4385.60	stressed	na	na
Klinkenberg Permea	ability, md:	0.005	-	-
Permeability to Air,	md:	0.019	-	
Swanson Permeabi	lity, md:	0.00001	-	*
Porosity, fraction:		0.013	-	-

maximum Sb/Pc, fraction: 0.00003 R35, microns: 0.00583 R50 (median pore throat radius): 0.00469

PORE THROAT SIZE HISTOGRAM



KELLAHIN & KELLAHIN Attorney at Law

W. THOMAS KELLAHIN 706 GONZALES ROAD SANTA FE, NEW MEXICO 87501

TELEPHONE 505-982-4285 FACSIMILE 505-982-2047 TKELLAHIN@COMCAST.NET

August 17, 2007

HAND DELIVERED

Mr. Mark Fesmire, P.E., Director Oil Conservation Division 1220 South Saint Francis Drive Santa Fe, New Mexico 87505

Administrative Application of Parallel Petroleum Corporation Re: for authorization to simultaneously dedicate a standard gas spacing and proration unit in the Wolfcamp formation to two horizontal wellbores, including an exception to the well density requirement of Division Rule 104.D, Chaves County, New Mexico S/2 Section 16, T15S, R25E

Swale 1525-16 State Well No. 1 and 2

Dear Ms. Fesmire:

cc:

On behalf of Parallel Petroleum Corporation, please find enclosed our referenced administrative application.

Thomas Kellahin

Parallel Petroleum Corporation Attn: Mike Gray

20052 ...

APP NO.

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -1220 South St. Francis Drive, Santa Fe, NM 87505



ADMINISTRATIVE APPLICATION CHECKLIST

IWFX-Waterflood Expansion IMFN-Pressure Maintenance Expansion ISWD-Salt Water Disposal IPI-Injection Pressure Increases IEOR-Qualified Enhanced Oil Recovery Certification IPPR-Positive Production Response TYPE OF APPLICATION - Check Those Which Apply for [A] Location - Spacing Unit Simultaneous Dedication NSL NSP SD Check One Only for [B] or [C]		[DHC-Down	idard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication] Ihole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling] In Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[A] Location - Spacing Unit Simultaneous Dedication NSL			[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[B] Commingling - Storage - Measurement	[1]		Location - Spacing Unit - Simultaneous Dedication
DOther: Specify [D] Other: Specify [D] Offset Operators, Leaseholders or Surface Owner [C] Application is One Which Requires Published Legal Notice [D] Notification and/or Concurrent Approval by BLM or SLO U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office [E] For all of the above, Proof of Notification or Publication is Attached, and/or, [F] Waivers are Attached [3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYP OF APPLICATION INDICATED ABOVE. [4] CERTIFICATION: I hereby certify that the information submitted with this application for administrative approval is accurate and complete to the best of my knowledge. I also understand that no action will be taken on application until the required information and notifications are submitted to the Division. [Note: Statement must be completed by an individual with managerial and/or supervisory capacity. Kellahin & Kellahin			Commingling - Storage - Measurement
NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply [A] Working, Royalty or Overriding Royalty Interest Owners [B] Offset Operators, Leaseholders or Surface Owner [C] Application is One Which Requires Published Legal Notice [D] Notification and/or Concurrent Approval by BLM or SLO U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office [E] For all of the above, Proof of Notification or Publication is Attached, and/or, [F] Waivers are Attached Waivers are Attached SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYP OF APPLICATION INDICATED ABOVE. 4 CERTIFICATION: I hereby certify that the information submitted with this application for administrative approval is accurate and complete to the best of my knowledge. I also understand that no action will be taken on application until the required information and notifications are submitted to the Division. Note: Statement must be completed by an individual with managerial and/or supervisory capacity. Kellahin & Kellahin		[C]	
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Prom or Type Name Signature AllOITEVS ALTHAVY Date		Lelle	V_{\perp} Kellahin & Kellahin $g/v_1/v_2$
706 Conzales Rd -4 4	Prim	or Type Name	Signature Attorneys At The Date 706 Gonzales Rd. THENDING OF THE Santa Fe, NM 8750/Address

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE ADMINISTRATIVE APPLICATION OF PARALLEL PETROLEUM CORPORATION FOR AUTHORIZATION TO SIMULTANEOUSLY DEDICATED A STANDARD SPACING AND PRORATION UNIT IN THE WOLFCAMP FORMATION TO TWO HORIZONTAL WELLS INCLUDING AN EXEMPTION TO THE WELL DENSITY REQUIREMENT OF RULE 104.D, CHAVES COUNTY, NEW MEXICO.

ADMINISTRATIVE APPLICATION

Parallel Petroleum Corporation ("Parallel") by its attorneys, Kellahin & Kellahin, seeks approval to simultaneously dedicate a standard gas spacing and proration unit in the Wolfcamp formation to two horizontal wellbores including an exemption to the well density requirements of Rule 104.D, Chaves County, New Mexico. Applicant seeks authorization to dedicate a standard 320-acre spacing and proration unit comprised of the S/2 of Section 16, Township 15 South, Range 25East, Chaves County, New Mexico in the Wolfcamp formation to the following two wells:

- (a) The Swale 1525-16 State Well No 2 (API #3000563924) to be drilled at an unorthodox surface location 760 feet FSL and 190 feet FWL (Unit M) and then to penetrate the Wolfcamp formation within the standard producing area window at a standard subsurface location approximately 660 feet FWL and 760 feet FSL (Unit M) and then drilled horizontally in an easterly direction staying within the producing area not less than 660 feet from each of the end and side boundaries of this spacing unit and ending at a standard bottom hole location 760 feet FSL and 660 feet FEL
- (b) The Swale 1525-16 State Well No. 1 (API #3000563886) that has been drilled at an unorthodox surface location 1880 feet FSL and 208 feet FWL (Unit L) and penetrated the Wolfcamp formation within the standard producing area window at a standard subsurface location approximately 660 feet FWL and 660 feet FSL (Unit L) and then was drilled horizontally in an easterly direction staying within the producing area not less than 660 feet from each of the end and side boundaries of this spacing unit and ending at a standard bottom hole location 1880 feet FSL and 660 feet FEL

In support of its application, Parallel states:

- (1) Parallel is the current operator of the Swale 1525-16 State Well No. 1 (API #3000563886) that has been drilled and completed as a horizontal well in the N/2S/2 of Section 16, T15S, R25E. See Exhibit "A" attached
- (2) Parallel has obtained approval of its APD to drill second horizontal well in the S/2S/2 of Section 16, T15S, R25E being the Swale 1525-16 Well No. 2 (API #3000563924). See Exhibit "B" attached
- (3) Division Rule 111 provides for the rules and regulations of the drilling of directional wells and by definition includes "horizontal" wells but apparently does not limited the number of horizontal wells that can be drilled within a Project Area. Instead Rule 111 refers to a project area "that is enclosed by the outer boundaries of a spacing unit or a combination of complete spacing units," and incorporates by reference Rule 104 to define a "spacing unit"
- (4) Division Rule 104.C (2) allows two wells in a 320-acre spacing unit with each well located in a different 160-tract of the 320-acre spacing unit. This rule appears not to specifically address horizontal wells.
- (5) Division Rule 104.D (3) States: "number of wells per spacing unit. Exceptions to the provisions of statewide rules or special pool orders concerning the number of wells allowed per spacing unit may be permitted by the Director only after notice and opportunity for hearing. Notice shall be given to those "affected parsons" defined by Rule 1207.A (2)."
- (6) The Division Legal Examiner, David K. Brooks, has advised the notice for this type of case, "affected parties" are: (a) all each operator of an adjoining and offsetting 320-acre drilled or undrilled spacing units (direct or diagonal offsets) (b) if undrilled, then to the working interest owners and unleased mineral owners, (c) if applicant is also the offsetting operator, then to its working interest owners, (d) if applicant is the offsetting operator and the only working interest owners, then to its lessors, (e) if the offsetting section has no spacing unit, then the applicant and presume the orientation closest to the subject spacing unit.

- (7) Parallel has provided written notice of hearing to all "affected parties, including those listed on the attached located map and index. Exhibit "C" and the notice letter attached as Exhibit "D"
- (8) Parallel's enclosed exhibits demonstrate that because of the low permeability of the Wolfcamp formation in this area:
 - a. the actual area being depleted by the first horizontal well is generally limited to the north half of this spacing unit, being the N/2S/4 of Section 16, and it not effectively recovery either the gas underlying the S/2 of Section 16 or adversely affecting the correlative rights of the offsetting interest owners.
 - b. A second horizontal well is needed by the south half of this spacing unit, being the S/2S/2 of Section 16, in order to provide a opportunity to recovery gas that might otherwise not be recovered under the S/2 of Section 16 and in doing so will not adversely affect the correlative rights of the offsetting interest owners.
- (9) Exhibit "E" is a written summary prepare by Parallel's petroleum geologist and petroleum engineer with supporting exhibits:
 - (a) paleogeography of the Permian basin---see Exhibit "F"
 - (b) NW shelf stratigraphic chart---see Exhibit G
 - (c) Cross Section & Trap Diagram---see Exhibit H
 - (d) Alysheba No. 1-Map View—see Exhibit I
 - (e) Alysheba No. Stage 2-Map View-Exhibit J
 - (f) Conclusions—Exhibit K
 - (g) Gas Analysis from Foreso 152506 State E-1 well, see Exhibit L
 - (h) Pore Throat Size Histogram—see Exhibit M
 - (i) Three well cross-section (Large display)—see Exhibit N
- (10) These exhibit are basically the same data presented to the Division's at a meeting on February 13, 2007 attended by members of the industry and the Division Chief Engineer, Richard Ezeanyim, and Division's attorney, David K. Brooks.
- (11) Approval of this application will not impair the correlative rights of any other interest owner in the area and will afford Parallel the opportunity to utilize two horizontal wells to produce the Wolfcamp formation gas reserves from this GPU.

(12) Approval of this application will be in the best interests of conversations, the prevention of waste and the protection of correlative rights.

WHEREFORE, Parallel Petroleum Corporation requests that this the Oil Conservation Division enter its order granting an exception to the well density requirements of Rule 104.B and authorize the simultaneous dedication of two horizontal wells within this spacing unit.

ESPECTFULLY SUBMITTED:

W. THOMAS KELLAHIN KELLAHIN & KELLAHIN

706 Gonzales Road Santa Fe, New Mexico 87501 (505) 982-4285

"STRICT_I 1625 N. Pench Dr., Robbit DISTRICT II 1301 W. Grand Avenue, Art DIRRE MEET

DISTRICT III 1000 Rio Brazos Rd., Astes, NM 67410

DISTRICT IV 1220 S. St. Francis Dr., Santa Fe, NM 67506

State of New Mexicon 123 Energy, Minerals & Natural Resources Department OIL CONSERVATION DESIGNATION 1220 South St. Frances Dr. Santa Fe, NM 87/505

Form C-102 Revised October 12, 2005 Strait to Appropriate District Office State Lease - 4 Copies Fee Lease - S Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name			
Property Code	-	7 1787 Wilder; Welfe Property Name SWALE 1525-16 STATE			
OGRID No.	•	ator Name LEUM CORPORATION		Elevation 3501	

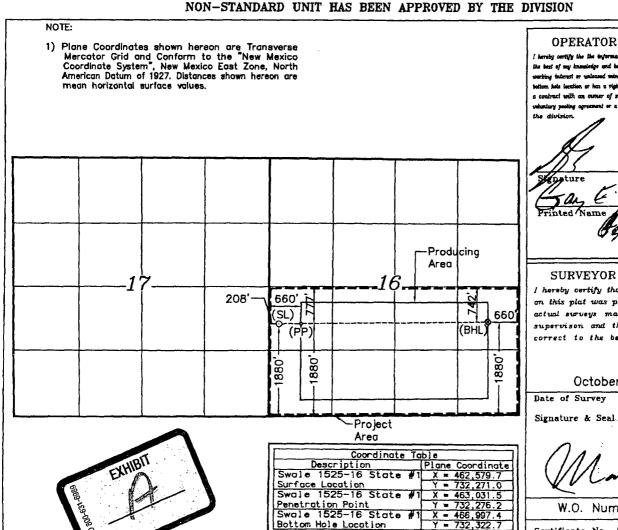
Surface Location

-	UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
į	L	16	15 S	25 E		1880'	SOUTH	208'	WEST	CHAVES

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	16	15 S	25 E		1880'	SOUTH	660	EAST	CHAVES
Dedicated Acres	Joint or	Infill C	onsolidation (Code Or	der No.	<u> </u>			<u></u>
320									

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A



OPERATOR CERTIFICATION

reby certify the the information contained herein is true and complete to the best of my knowledge and belief, and that this organisation either owns a porting interest or unlessed mineral interestin the land including the propo bottom hale lacution or has a right to drill this well at this location years a contract with an owner of such a mineral or working interest, or to a

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison and that the same is true and correct to the best of my belief.

October 12, 2006

.KMT

Signature & Seal of Professional Surveyor

W.O. Num. 2006-1002

12185 Certificate No. MACON McDONALD

DISTRICT I 1625 N., Fremch Dr., Robbs, NN 88240

DISTRICT II 1301 W. Grand Avanue, Artesia, NM 86210

DISTRICT III 1000 Rio Bresos Rd., Astec, NM 87410

DISTRICT IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Frances Dr. Santa Fe. NM 87505

Form C-102 Revised October 12, 2005 Submit to Appropriate District Office State Lease - 4 Copies Pec Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 97489	97489 Wilder Wolfer					
Property Code	-	rty Name 25-16 STATE	Well Number				
OGRID No.	•	tor Name EUM CORPORATION	Elevation 3498'				
	C. T.	a Location					

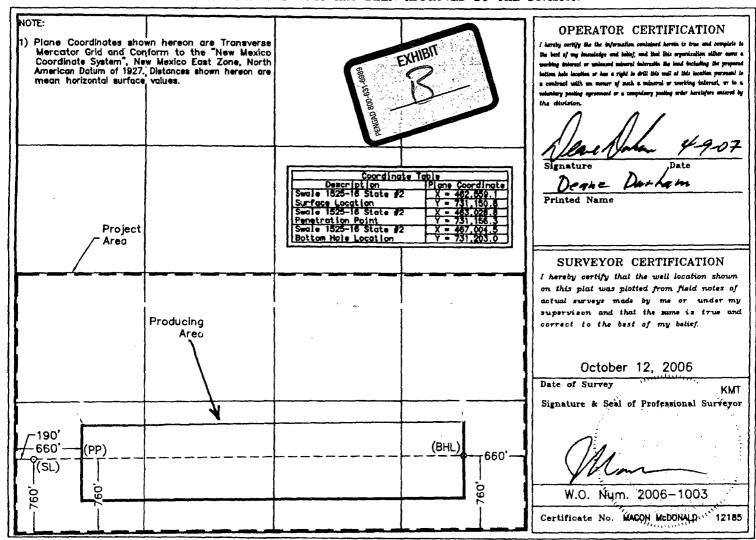
Surface Location

UL o	r lot No.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Fact from the	East/West line	County
	М	16	15 S	25 E		760	SOUTH	190	WEST	CHAVES

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	15 S	25 E		760	SOUTH	660	EAST	CHAVES
Dedicated Acres	Joint or	infili Co	nsolidation (Code Or	der No.	!		<u> </u>	
320									

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



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Parallel Petroleum Corporation's Notice List For Swale 1525-16 State Com Wells No. 1 and 2

Tract 1: N/2 of Sec 15 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc.

Tract 2: S/2 of Sec 15 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 3: N/2 of Sec 16 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 4: N/2 of Sec 17 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (d) CMW Interests, Inc. (W/2E/2)
- (e) Egler Exploration, Inc.(W/2E/2)

Tract 5: S/2 of Sec 17 (Drilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc. (W/2E/2)
- (d) Egler Exploration, Inc. (W/2E/2)

Tract 6: N/2 of Sec 20 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 7: N/2 of Sec 21 (Undrilled)

- a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tracts 8: N/2 of Sec 22 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc. (E/2NE/4)
- (d) Elger Exploration, Inc. (E/2NE/4)
- (e) Unleased mineral interest owners:
 - a. A. Gayle Hudgens. a single womanP.O. Box 25561Dallas, TX 75225

- b. Sacramento Partners Limited Partnership 105 South Fourth Street Artesia. NM 88210
- c. Spiral, Inc. P.O. Box 1933 (address)
- e. Sharbro Oil Ltd. Co. P.O. Box 829 Artesia, NM 88211
- f. Southwest Resources, Inc. 1111 West Country Club Road Roswell, NM 88201
- g. Lobos Energy Partners, LLC 3817 NW Expressway, Suite 950 Oklahoma City, OK 73112
- h. Estate of W. E. Flint, dec.

 Dona Ana County, NM PC #5171

 Elaine B. Flint, widow and exec.

 2125 Thomas Dr.

 Las Cruces, NM 88001
- i. Margaret Louise Doyle & John Steven Doyle,
 3747 66 Campana South
 Oceanside, CA 92054
- j. Martin Yates III c/o Myco Industries, Inc. P. o. Box 840 Artesia NM 88211

KELLAHIN & KELLAHIN Attorney at Law

W. Thomas Kellahin 706 Gonzales Road Santa Fe, New Mexico 87501

TELEPHONE 505-982-4285 FACSIMILE 505-982-2047 TKELLAHIN@COMCAST.NET

August 17, 2007 CERTIFIED MAIL-RETURN RECEIPT REQUESTED

NOTICE OF THE FOLLOWING NEW MEXICO OIL CONSERVATION DIVISION ADMINISTRATIVE CASE:

OFFSETTING INTEREST OWNERS:

Re: Administrative Application of Parallel Petroleum Corporation for authorization to simultaneously dedicate a standard gas spacing and proration unit in the Wolfcamp formation to two horizontal wellbores, including an exemption to the well density requirements

of Rule 104.D, Chaves County, New Mexico

Dear interest owner:

On behalf of Parallel Petroleum Corporation please find enclosed a copy of its referenced administrative application. This notice is based upon records that indicate that you have an interest in adjoining and offsetting tracts and are parties affected by this application

If you have no objection, then there is nothing for you to do. If you are willing to waiver objection, please sign this letter as indicated and return it to me. However, should you have any objection to the Division approving this application, then it will be necessary for you to file a written objection with the New Mexico Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505 within twenty (20) days of the date of this letter. Failure to file a timely objection will preclude you from objecting at a later date.

W. Thomas Kellahin

WAIVER OF OBJECTION:

By: _____ with authority for and on behalf of _____ Date: _____

KELLAHIN & KELLAHIN Attorney at Law

W. THOMAS KELLAHIN
706 GONZALES ROAD
SANTA FE, NEW MEXICO 87501

TELEPHONE 505-982-4285 FACSIMILE 505-982-2047 TKELLAHIN@COMCAST.NET

RECEIVED IN 11 53

August 17, 2007

HAND DELIVERED

Mr. Mark Fesmire, P.E., Director Oil Conservation Division 1220 South Saint Francis Drive Santa Fe, New Mexico 87505

Re: Administrative Application of Parallel Petroleum Corporation for authorization to simultaneously dedicate a standard gas spacing and proration unit in the Wolfcamp formation to two horizontal wellbores, including an exception to the well density requirement of Division Rule 104.D, Chaves County, New Mexico S/2 Section 16, T15S, R25E
Swale 1525-16 State Well No. 1 and 2

Dear Ms. Fesmire:

cc:

On behalf of Parallel Petroleum Corporation, please find enclosed our referenced administrative application.

Thomas Kellahin

Parallel Petroleum Corporation
Attn: Mike Gray

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE ADMINISTRATIVE APPLICATION OF PARALLEL PETROLEUM CORPORATION FOR AUTHORIZATION TO SIMULTANEOUSLY DEDICATED A STANDARD SPACING AND PRORATION UNIT IN THE WOLFCAMP FORMATION TO TWO HORIZONTAL WELLS INCLUDING AN EXEMPTION TO THE WELL DENSITY REQUIREMENT OF RULE 104.D, CHAVES COUNTY, NEW MEXICO.

ADMINISTRATIVE APPLICATION

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- (8) Parallel's enclosed exhibits demonstrate that because of the low permeability of the Wolfcamp formation in this area:
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 - (c) Cross Section & Trap Diagram---see Exhibit H
 - (d) Alysheba No. 1-Map View—see Exhibit I
 - (e) Alysheba No. Stage 2-Map View—Exhibit J
 - (f) Conclusions—Exhibit K
 - (g) Gas Analysis from Foreso 152506 State E-1 well, see Exhibit L
 - (h) Pore Throat Size Histogram—see Exhibit M
 - (i) Three well cross-section (Large display)—see Exhibit N
- (10) These exhibit are basically the same data presented to the Division's at a meeting on February 13, 2007 attended by members of the industry and the Division Chief Engineer, Richard Ezeanyim, and Division's attorney, David K. Brooks.
- (11) Approval of this application will not impair the correlative rights of any other interest owner in the area and will afford Parallel the opportunity to utilize two horizontal wells to produce the Wolfcamp formation gas reserves from this GPU.

(12) Approval of this application will be in the best interests of conversations, the prevention of waste and the protection of correlative rights.

WHEREFORE, Parallel Petroleum Corporation requests that this the Oil Conservation Division enter its order granting an exception to the well density requirements of Rule 104.B and authorize the simultaneous dedication of two horizontal wells within this spacing unit.

ÉSPECTFULLY SUBMITTED:

W. THOMAS KELLAHIN KELLAHIN & KELLAHIN

706 Gonzales Road

Santa Fe, New Mexico 87501

(505) 982-4285

DISTRICT 1 .. 1625 N. French Dr., Hobbet, 188240 DISTRICT II 10 70 88210 1301 W. Grand Avenue, Art DISTRICT III 1000 Rio Brazos Rd., Astec, NM \$7410

State of New Mexicon 23.22 Energy, Minerals & Natural Resources Separtment OIL CONSERVATION DESISION 1220 South St. Frances B Santa Fe, NM 87505

Form C-102 Revised October 12, 2005 Strenit to Appropriate District Office State Lease - 4 Copies Fee Lease - S Copies

☐ AMENDED REPORT

DISTRICT IY 1220 S. St. Francis Dr., Santa Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION

API Number	97 489	Pool Name			
Property Code	Property Code Property Name				
	SWALE 152	25-16 STATE	1		
OGRID No.	Opera	tor Name	Elevation		
	PARALLEL PETROL	PARALLEL PETROLEUM CORPORATION			

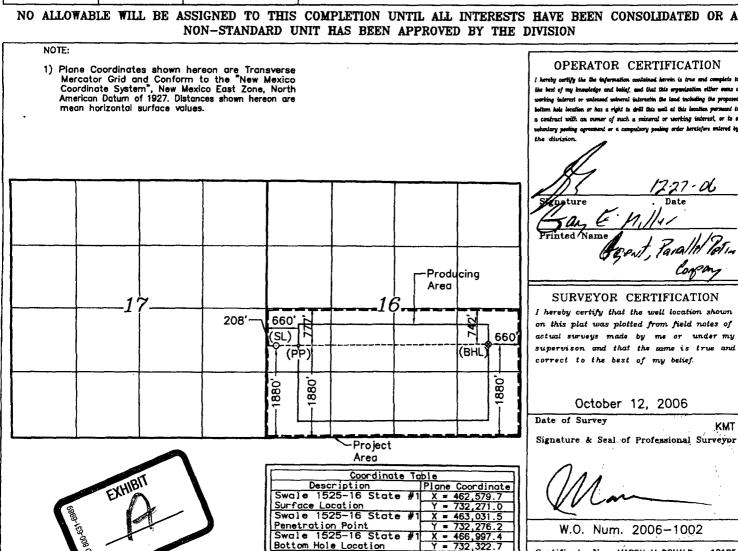
Surface Location

	UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
i	L	16	15 S	25 E		1880'	SOUTH	208'	WEST	CHAVES	1

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range Lot Idn		Feet from the North/South line		Feet from the	East/West line	County
	16	15 S	25 E		1880'	SOUTH	660	EAST	CHAVES
Dedicated Acres	Joint or	Infill Co	nsolidation	Code Or	der No.				
320									

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A



OPERATOR CERTIFICATION

the best of my knowledge and boilef, and that this organisation either sums a specking interest or scaleaged scineral interestin the land including the proposed a contract with an owner of such a mineral or working interest, or to a

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison and that the same is true and

KMT

Signature & Seal of Professional Surveyor

Certificate No. MACON McDONALD 12185 DISTRICT I 4 1625 N. French Dr., Hobbs, NM 88240

DISTRICT II

1301 W. Grand Avenue, Artesia, NM 86210

DISTRICT III
1000 Rio Brazos Rd., Astec, NM 87410

State of New Mexico

Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Frances Dr.

Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

□ AMENDED REPORT

DISTRICT IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 97489		Pool Name Woffcamp
Property Code	_	ty Name 25-16 STATE	Well Number
OGRID No.	_	or Name EUM CORPORATION	Elevation 3498'

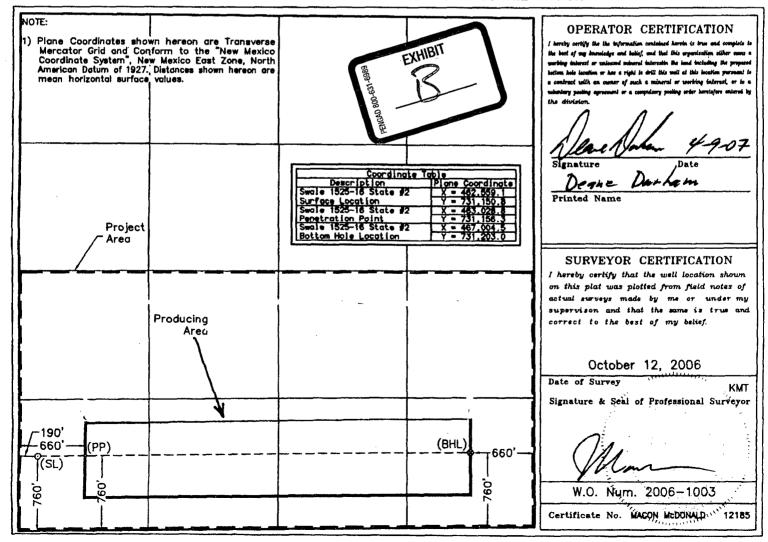
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	16	15 S	25 E		760	SOUTH	190	WEST	CHAVES

Bottom Hole Location If Different From Surface

UL or lot No. 8	or lot No. Section Township Range Lot		Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
Р	16	15 S	25 E		760	SOUTH	660	EAST	CHAVES
Dedicated Acres	Joint or	Infill Co	nsolidation (Code Or	der No.		<u>, </u>		

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



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Parallel Petroleum Corporation's Notice List For Swale 1525-16 State Com Wells No. 1 and 2

Tract 1: N/2 of Sec 15 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc.

Tract 2: S/2 of Sec 15 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 3: N/2 of Sec 16 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 4: N/2 of Sec 17 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (d) CMW Interests, Inc. (W/2E/2)
- (e) Egler Exploration, Inc.(W/2E/2)

Tract 5: S/2 of Sec 17 (Drilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc. (W/2E/2)
- (d) Egler Exploration, Inc. (W/2E/2)

Tract 6: N/2 of Sec 20 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tract 7: N/2 of Sec 21 (Undrilled)

- a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.

Tracts 8: N/2 of Sec 22 (Undrilled)

- (a) Parallel and
- (b) Capstone Oil & Gas Company, L.P.
- (c) CMW Interests, Inc. (E/2NE/4)
- (d) Elger Exploration, Inc. (E/2NE/4)
- (e) Unleased mineral interest owners:
 - a. A. Gayle Hudgens. a single woman
 P.O. Box 25561
 Dallas, TX 75225

b. Sacramento Partners Limited Partnership 105 South Fourth Street Artesia. NM 88210

- c. Spiral, Inc. P.O. Box 1933 (address)
- e. Sharbro Oil Ltd. Co. P.O. Box 829 Artesia, NM 88211
- f. Southwest Resources, Inc. 1111 West Country Club Road Roswell, NM 88201
- g. Lobos Energy Partners, LLC 3817 NW Expressway, Suite 950 Oklahoma City, OK 73112
- h. Estate of W. E. Flint, dec.

 Dona Ana County, NM PC #5171

 Elaine B. Flint, widow and exec.

 2125 Thomas Dr.

 Las Cruces, NM 88001
- i. Margaret Louise Doyle & John Steven Doyle, 3747 - 66 Campana South Oceanside, CA 92054
- j. Martin Yates III c/o Myco Industries, Inc. P. o. Box 840 Artesia NM 88211

KELLAHIN & KELLAHIN Attorney at Law

W. Thomas Kellahin 706 Gonzales Road Santa Fe, New Mexico 87501

TELEPHONE 505-982-4285 FACSIMILE 505-982-2047 TKELLAHIN@COMCAST.NET

August 17, 2007 CERTIFIED MAIL-RETURN RECEIPT REQUESTED

NOTICE OF THE FOLLOWING NEW MEXICO OIL CONSERVATION DIVISION ADMINISTRATIVE CASE:

OFFSETTING INTEREST OWNERS:

Re: Administrative Application of Parallel Petroleum Corporation for authorization to simultaneously dedicate a standard gas spacing and proration unit in the Wolfcamp formation to two horizontal wellbores, including an exemption to the well density requirements

of Rule 104.D, Chaves County, New Mexico

Dear interest owner:

On behalf of Parallel Petroleum Corporation please find enclosed a copy of its referenced administrative application. This notice is based upon records that indicate that you have an interest in adjoining and offsetting tracts and are parties affected by this application

If you have no objection, then there is nothing for you to do. If you are willing to waiver objection, please sign this letter as indicated and return it to me. However, should you have any objection to the Division approving this application, then it will be necessary for you to file a written objection with the New Mexico Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505 within twenty (20) days of the date of this letter. Failure to file a timely objection will preclude you from objecting at a later date.

WAIVER OF OBJECTION:

By: ______ with authority for and on behalf of _____ Date: _____

Wolfcamp Reservoir Development Section 16, T15S, R25E Chaves Co., New Mexico Case # 13965

This Wolfcamp gas reservoir is interpreted as the sabkha shelf model along the Northwest carbonate platform. The Wolfcamp reservoir is contained within the restricted lagoon-platform facies belt where dolomitization and fracturing has occurred to enhance the porosity and in deep enough water so that evaporates are not prevalent to occlude porosity. Up-dip, north to northwest of the reservoir are terrestrial deposits which do include evaporates that cement the porosity and act as a seal for the Wolfcamp stratigraphic trap. Down-dip, south to southeast, of the dolomitized Wolfcamp reservoir facies belt are tight limestones that do not contain the reservoir development.

There are three alternating depositional cycles. The matrix porosity is comprised of a dolomitized fusulinid wackestone-packstone overlain by a burrowed lime mud overlain by a lagoonal shale which is the maximum flooding event. The reservoir also contains natural fractures. The principal maximum stress direction is predominantly north-south. The formation dips to the east-southeast at 1 degree. The average gross thickness of the Wolfcamp varies from 25'-50' with an average net thickness of a few feet to 25' and an average porosity less than 8%.

Planned spacing between horizontal laterals in the south-half of section 16 is 1160'. The Swale 1525-16 State #1 has been drilled in the north-half of the south-half and actual footages for the penetration point and total depth within the Wolfcamp pay are:

Surface Location @ 1880' FSL and 208' FWL, Section 16, T15S, R25E

Penetration Point @ 5183' measured depth, 1850' FSL and 751' FWL

Bottom-Hole Location @ 8924' measured depth, 1906' FSL and 790' FEL.

Perforations are from top perf at 5290' measured depth to bottom perf at 8822' measured depth.

The Swale 1525-16 State #2 will be in the south-half of the south-half, and planned surface, penetration point and total depth are:

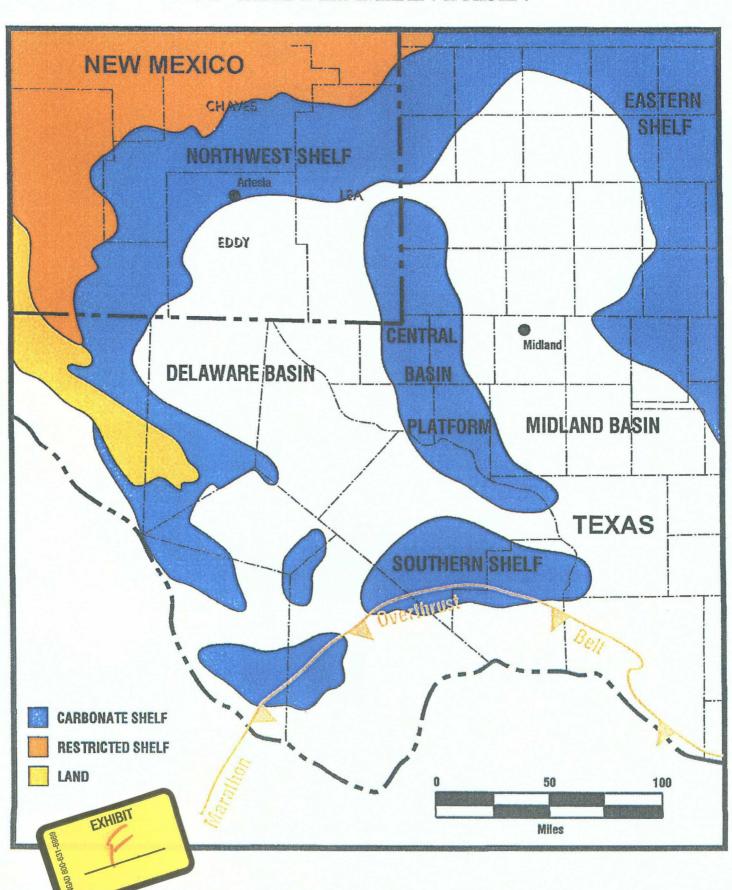
Surface Location @ 760' FSL and 190' FWL, Section 16, T15S, R25E

Penetration Point @ 760' FSL and 660' FWL, Bottom-Hole Location @ 760' FSL and 660' FEL.

Recommended fracture half-lengths for this formation in the area are 1,100' in order to drain 160 acres. This would require 4 horizontal wells in parallel to drain a 640-acre section. This 1,100' fractured half-length yields an approximate proppant-fractured half-length of 500-600' and an effective producible half-length of 300-400'. Microseismic monitoring data from wells in the area fractured using Parallel Petroleum's preferred stimulation method show a fractured half-length of 900' and therefore the estimated producible half-length estimate is shorter than the recommended 300-400'. An optimistic estimate of 300' producible half-length of both the Swale #1 and the Swale #2 would create an unproductive interval along the length of and between the laterals of 560'.

In conclusion, given: low permeability of the dolomite (< .01 - .02 md), small net pay interval (< .00 in section 16) and low porosity of the interval (< .00 - .00 md), small net pay interval (< .00 in section 16), the Wolfcamp formation should be produced using 2 parallel horizontal wells per 320-acre unit to efficiently drain the unit.

WOLFCAMPIAN (PERMIAN) PALEOGEOGRAPHY OF THE PERMIAN BASIN



Wolfcamp Reservoir Development Section 16, T15S, R25E Chaves Co., New Mexico Case # 13965

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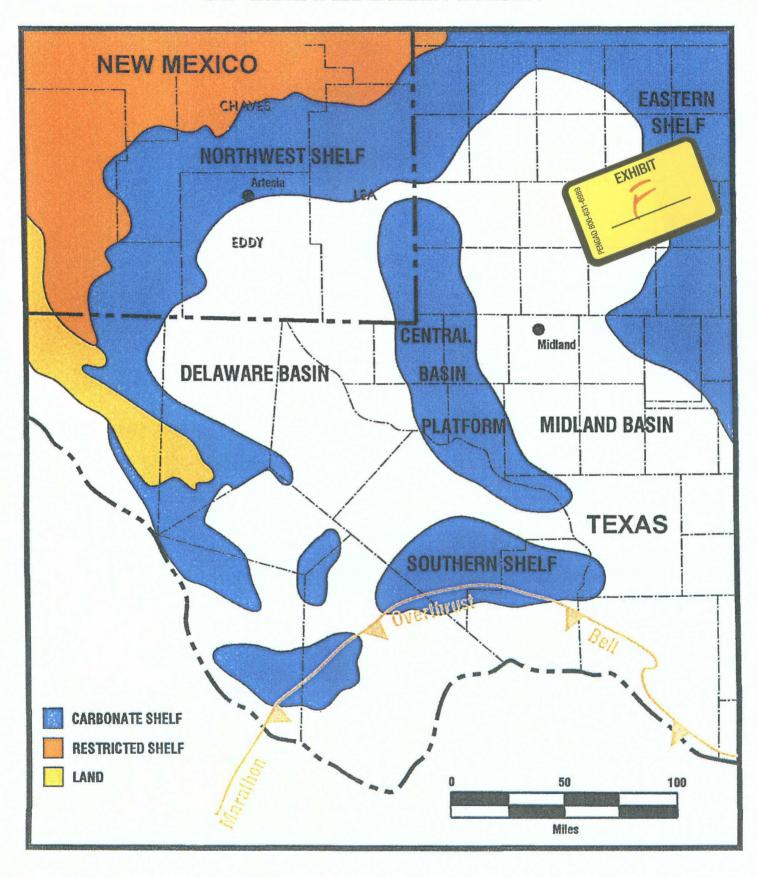
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Penetration Point @ 760' FSL and 660' FWL, Bottom-Hole Location @ 760' FSL and 660' FEL

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WOLFCAMPIAN (PERMIAN) PALEOGEOGRAPHY OF THE PERMIAN BASIN



Northwest Shelf Stratigraphic Chart

Ag	ie I	Unit Name	HC's	Approx. Depth
		Rustler		.,
	Ochoan	Salado		
		Tansill		
			6	
		Seven Rivers	<u>~~~</u>	
	Guadalupian	Yates Seven Rivers Queen	· 次	
		Grayburg	• \(\delta \) \(\delta \)	
Permian		San Andres	0	
289-248 MYA		Glorieta	€	
		Yeso	• 	·
	Leonardian	Abo	• ‡	Top Reservoir
	Wolfcampian	Wolfcamp	®	~5000-5500'
		Cisco		
Ponnovlyonian		Canyon		
Pennsylvanian 289-320 MYA		Strawn	○ ☆	
200 020 WITK		Atoka	芬	
		Morrow	<u>☆</u> • ☆	
Mississippian		Miss. Lime	44.0	
320-363 MYA		Woodford		
Devonian 409-363 MYA		Devonian	莽	
Silurian		U. Silurian		j
439-409 MYA		Fusselman	Ø	
		Montoya	0	
		_ McKee	次	
Ordovician		୪ Waddell		
510-439 MYA		Waddell Connell		
		Joins	<u> </u>	
		Ellenburger	芷	
Cambrian 510-570 MYA				
Pre-Cambrian >570 MYA		,		

LEGEND



Current Active Plays

Oil Producing Zones

☆ Gas Producing Zones



CROSS SECTION & TRAP DIAGRAIM

N

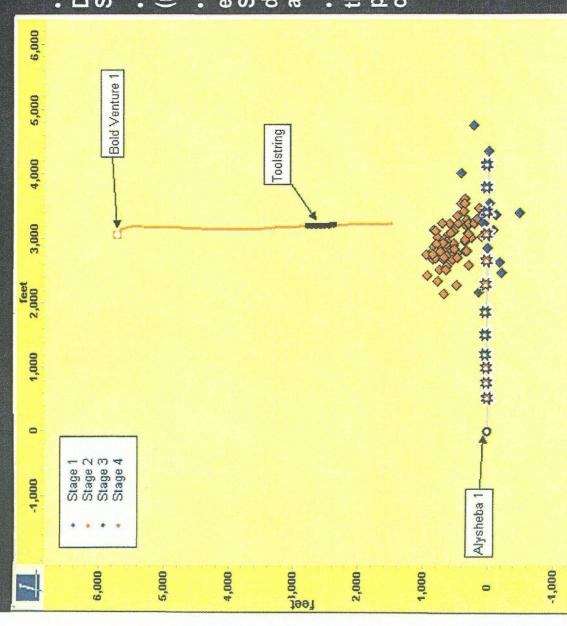
SE

RESERVOIR/DOLOMITE DOWN-DIP LIMIT OF DEVELOPMENT DELAWARE BASIN BLACK SHALE RESERVOIR DEVELOPMENTS ANHYDRITE & SALT DOLOMITATION ZONE WOLFCAMP ANHYDRITE & DOLOMITE NORTHWEST SHELF DOLOMITE DARK-CHERTY DOLOMITE-LS LIMESTONE WOLFCAMP FM.



Northwest-southeast cross section across the Northwest Shelf/Delaware Basin transition. Rock types are diffrentiated illustrating the trap developed within the Wolfcamp reservoir. dolomitized reservoir developed down-dip. Further down structure the reservoir is limited The pervasive evaporite deposites in the northwest act as a stratigraphic seal for the by the lack of dolomite within tighter limestone and shale deposits.

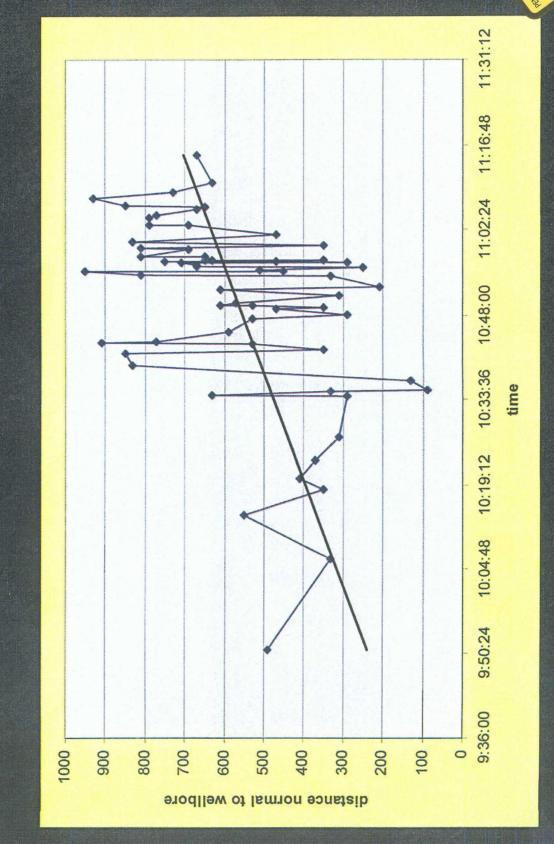
Alysheba No. 1 - Map View



- Fracture Azimuths: Difficult to determine, possibly N-S.
- Fracture Half-Lengths: ~900' (measured North from wellbore)
- Most of the microseismic events were recorded during Stage 2. Only one event was detected during both Stages 3 and 4.
- Unclear why Stage 2 produced the majority of the events; perhaps interaction with faulting or fracture swarm near wellbore?



Alysheba No. 1 Stage 2 – Map View



J. Pinnac

Conclusions

- Azimuth uncertain, but has a strong N-S component
- Possibility of a N35°E secondary component
- 250 ft of height
- •900 ft of half-length, longer than Seabiscuit, but still shorter than competitors
- Low degree of complexity
- initiation (all stages lack of tortuosity, presense of ·Higher pressures may not be related to oblique perf friction)



Wildcat Heasurement Service P.O. Box 1836 Artesia. New Hexico 88211-1836 TollFree #888-421-9453

Office #505-746-3481 "Quality and Service is our First Concern" PDS 06/25/00

261213-02 Run No. Date Ron 12/13/2006 Date Sampled 12/09/2006

Analysis for: PARALLEL PETROLEUM CORPORATION

Well Bane: FORESO 1525-16 STATE "B" #1

GPANGL. L62

Pield:

Sta. Humber:

County: CHAVES Sampled By: A.J.G.

State: BH

Purpose: SPOT

Sampling Yeap: 22.0 DEG F

0.6738

0.3834

Atmos Temp:

Volume/day: 1925 MCF/DAY

Formation:

DEG 7

Producer: PARALLEL PETROLEUM CORP.

Pressure on Cylinder: 60.0 PSIG

Line Pressure: 73.2 PSIA

GAS COMPONENT ANALYSIS

Mol % GPM Pressura Base: 14.7300

Real BYO Dry: 1078.92

Real BPD Wet: 1060.14

Field Specific Gravity: 0.0000

Real Calc. Specific Gravity: 0.6732

Carbon Dioxide CO2 4.3235

22

Standard Pressure: 14.6960

870 Dry: 1073.62 BTU Wet: 1054.94

Kethane Cl 85.9676 Ethane C2 5.6524

1.5108 1.9299 0.5314 0.0920

0.1673

3 Pactor: 0.9974 N Value: 1.2948 Avg Esl Weight: 19.4551

Propane C3 Iso-Butane 104 0.2812 Nor-Butane 0.4872 RC4 0.1536 Iso-Pentane 105 0.1606 0.0588 Nor-Pentane HC5 0.1404 0.0508

C6+

Avg CuPt/Gal: 57.1122 26 %b Product: 0.4332 Kethane+ GPM: 17.1358

Bthane+ GPM: 2.5647 Propane+ GPM: 1.0538 Batane+ GPM: 0.5225 Pentane+ GPM: 0.2769

TOTAL

Hexanes Plus

Mitrogen

100.0000 2.5647

REHARKS:

Approved by: DON NORMAR

Wed Dec 13 10:13:35 2006

Company:	Bold Energy	
Well:	Delilah State No. 1	
Field:	Runyan Ranch	
Formation:	Wolfcamp	

Location: Eddy County, New Mexico

File: H

HOU-060947

Sample:	6Bm	un-	Host Plug	
Depth, feet:	4385.60	stressed	na	na
Klinkenberg Permeability, md:		0.005	•	-
Permeability to Air, md:		0.019	-	-
Swanson Permeability, md:		0.00001	-	-
Porosity, fraction:		0.013		-

maximum Sb/Pc, fraction: 0.00003
R35, microns: 0.00583
R50 (median pore throat radius): 0.00469

PORE THROAT SIZE HISTOGRAM

